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ASHBRIDGE'S BAY RECLAMATION

REPORTS OF

MR. W. T. JENNINGS, C.E., M.I.C.E. (1880)

.. AND...

MR. E. H. KEATING, C.E., M.I.C.E. (1892).

EXTRACT FROM
CITY ENGINEER'S ANNUAL REPORT
FOR 1890.

ASHBRIDGE'S BAY RECLAMATION.

The following is a report made by me to the Sub-Committee of the Property Committee in July last, respecting the reclamation of Ashbridge's Bay:

CITY ENGINEER'S OFFICE,
Toronto, July 7th, 1890.

*To the Chairman and Members of the Sub-Committee of the Property Committee,
re Ashbridge's Bay Reclamation.*

Gentlemen,—In conformity with the resolution of your Committee, "that the proposal of Messrs. Beavis & Brown, for the reclamation of Ashbridge's Bay be referred to me for report, and that the Engineer employed by the above named firm, be invited to explain the scheme of his Company; that I be requested to advise your Committee as to any better plan for the reclamation of said lands and the cleansing of Ashbridge's Bay and to furnish an estimate of the probable cost of the improvement,"

I beg to report that to enable me to answer your request I have had the whole area (embraced within the easterly limit of Toronto Harbour and the easterly limit of Ashbridge's Bay, and from the property holders' southerly limit facing said Bay, south to the City limit on the lake side), accurately surveyed and sounded. I have also been in communication with Mr. Redway, agent for Messrs. Beavis & Brown, and Mr. C. A. Simmons, of the Imperial Trusts Company, and from these gentlemen learned the propositions of their respective companies.

While looking on the "reclamation" scheme as a good one, not only from a sanitary standpoint, but also as a means of affording a very considerable addition to the City's water front, I deem it my duty to express the opinion that it is inadvisable on the part of the City to entertain Messrs. Beavis & Brown's proposal, or any one of a like nature: it being apparent that if profit is to be derived from its execution, the City should not only get the full benefit, but be always in a position to control its lands.

I would therefore advise that, if decided upon, the City undertake the work directly, and after completing financial arrangements, commence by securing the required property, etc., on line of suggested improvements, including stoppage of deposit of excrement, etc., now allowed to flow into

the marsh area from the "byres," after which work should be commenced as hereunder set forth, or on a more or less modified design.

A channel should be formed from a point in Toronto Bay about opposite Parliament Street, and extending easterly to the north of the Toronto dry dock; thence curving slightly to the right and continuing on a course parallel to and south of the line dividing property of private holders from that of the City; thence easterly along course of said dividing line to present outlet through the sand bar near the foot of Woodbine Avenue. This channel, to be thoroughly useful for shipping purposes, should be 300 feet wide and 15 feet deep, with sheet piling protection on south side from near point of commencement to dry dock, and on north side from near dry dock to point where new Don channel should enter it to south of the G. T. R. bridge; also, in meantime, on north side from latter point to eastern terminus at the sand bar. The new channel for the River Don should also be protected by sheet piling from confluence with channel, to its present course near G. T. R. bridge. The eastern outlet to the lake should be of the same width as the channel and formed by two lines of large, well-framed cribs, filled with stone, and extending southerly from the sand bar some 900 feet, or to such distance as may be necessary to secure the required depth of water.

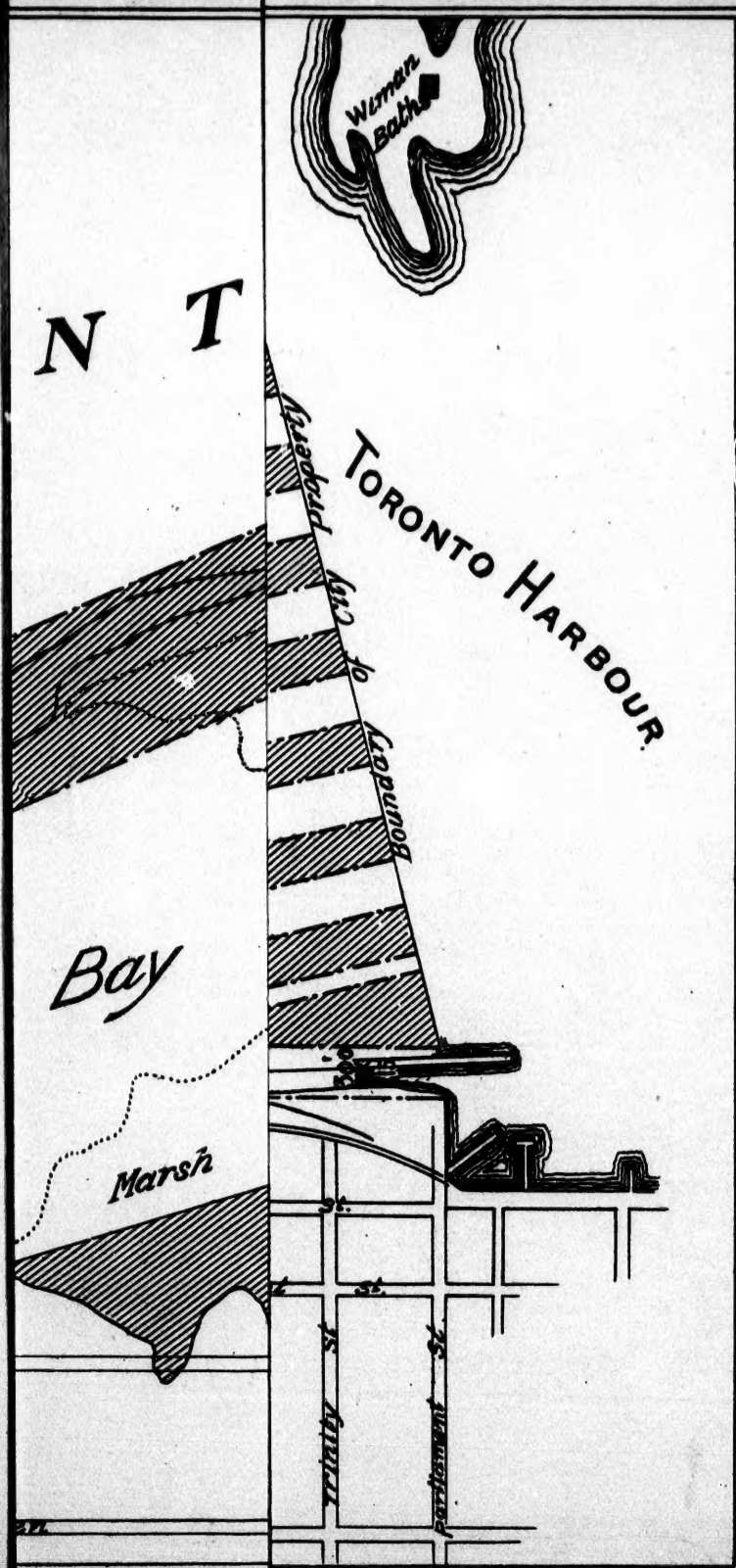
Adjoining the north side of the channel, from its western extremity near the dry dock to its eastern terminus, a road and dock allowance of at least 120 feet in width should be dedicated to the City by owners of property fronting thereon; access to this allowance should be secured for shunting and unloading tracks for railway cars and for tramways; these tracks, together with all dock frontages, should be under full control of the City.

1. The cost of carrying out the improvement above set forth, including the reclamation of all marsh lands and road allowance (155 acres) north of the channel, sheet piling and filling a block 350 feet by 1,400 feet south of channel between Parliament and Cherry Streets produced, removal of old line of cribs near present mouth of River Don; extension of Gooderham's water pipe, land damages, etc., would be approximately \$850,000.

2. The above plan modified by reduction of channel to 200 feet by 10 feet, and eastern entrance to 300 feet by 12 feet, would cost, approximately, \$782,000.

3. A further reduction to a channel 200 feet by 10 feet, with sheet piling on north side from nearly opposite the dry dock to Leslie Street, the eastern entrance being retained at 300 feet by 12 feet, with reclamation of lands to north only amounting to area the material dredged from channel would permit, can be carried out for, approximately, \$395,000.

4. A channel, etc., 100 feet by 10 feet, covering same ground as No. 3, including eastern entrance 300 feet by 12 feet, would cost, approximately, \$306,000. In this case the material excavated would barely make up a 50-foot roadway on north side of channel.



— PLAN

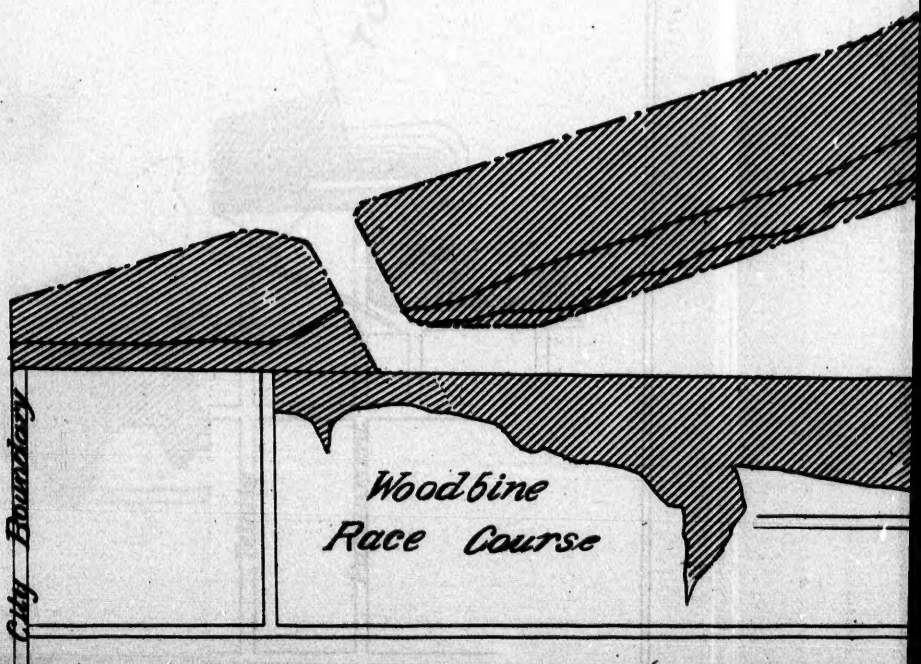
— ASHBRIDGE

*Shewing proposed Channel
Bay to Eastern Outlet
sed to be reclaimed as per
Beavis and Brown.*

Accompanying Mr W.T. Jennings



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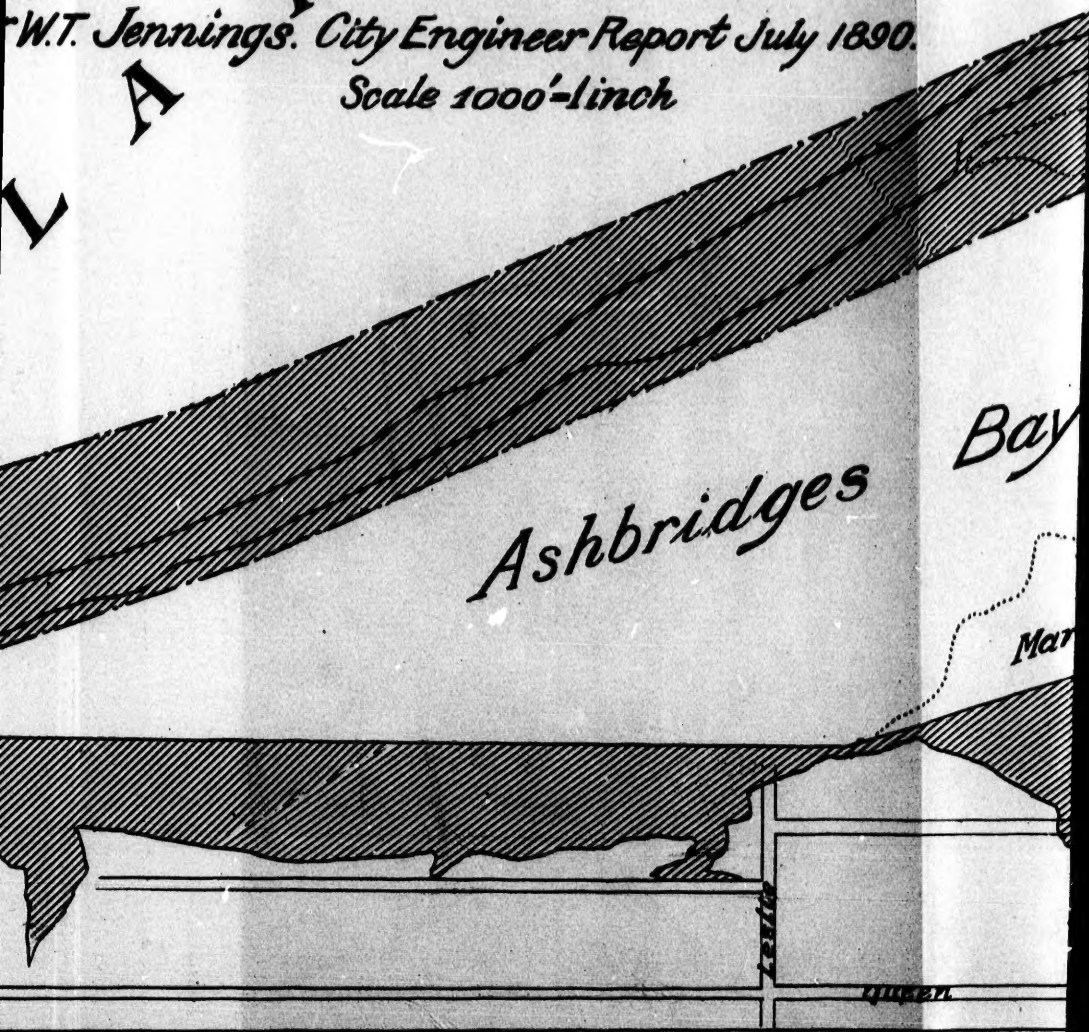
— PLAN OF —

ASHBRIDGES BAY —

Proposed Channel from Toronto
to the Lake Ontario Outlet with lands proposed
to be reclaimed as per scheme of Messrs

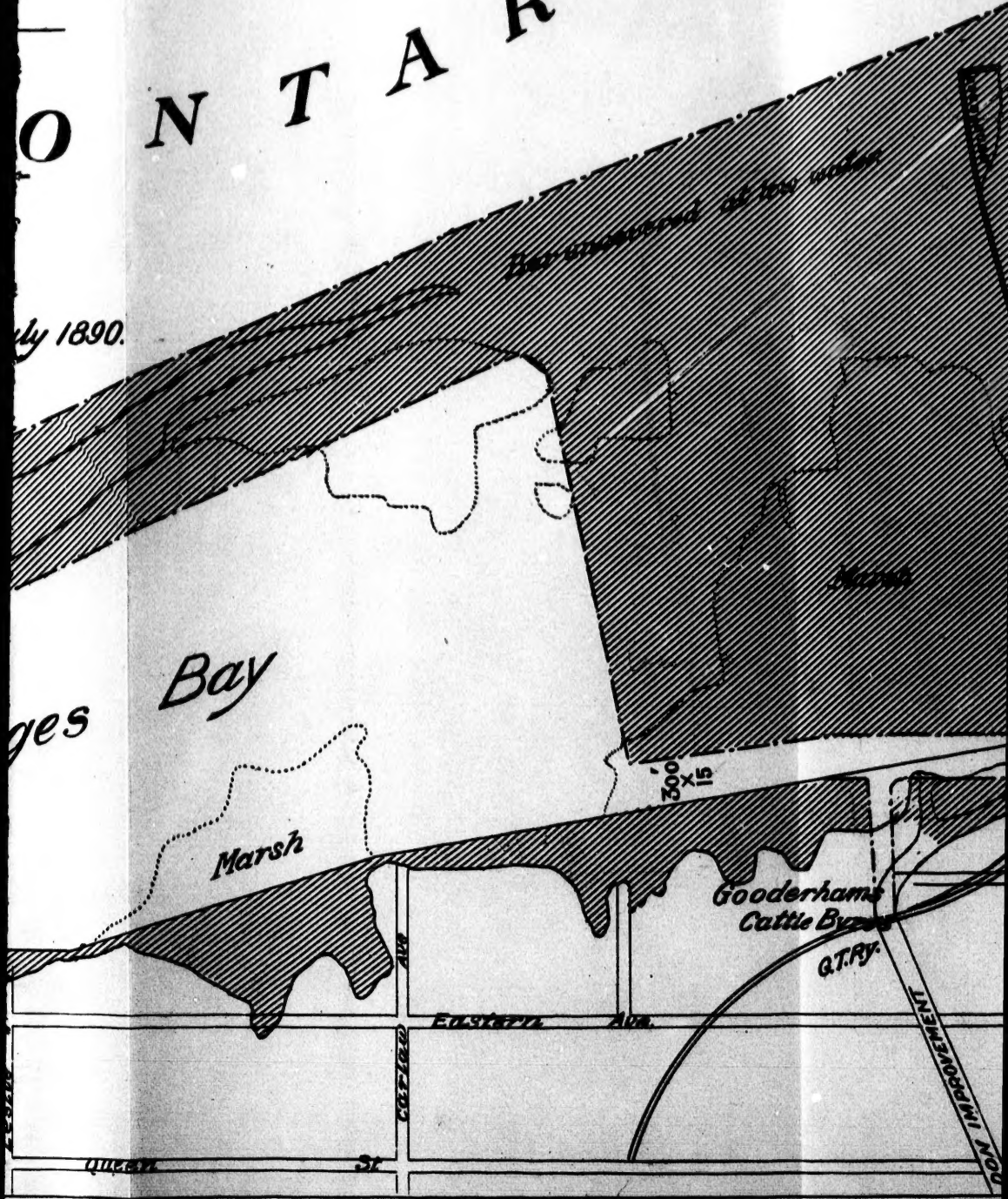
Jennings. City Engineer Report July 1890.

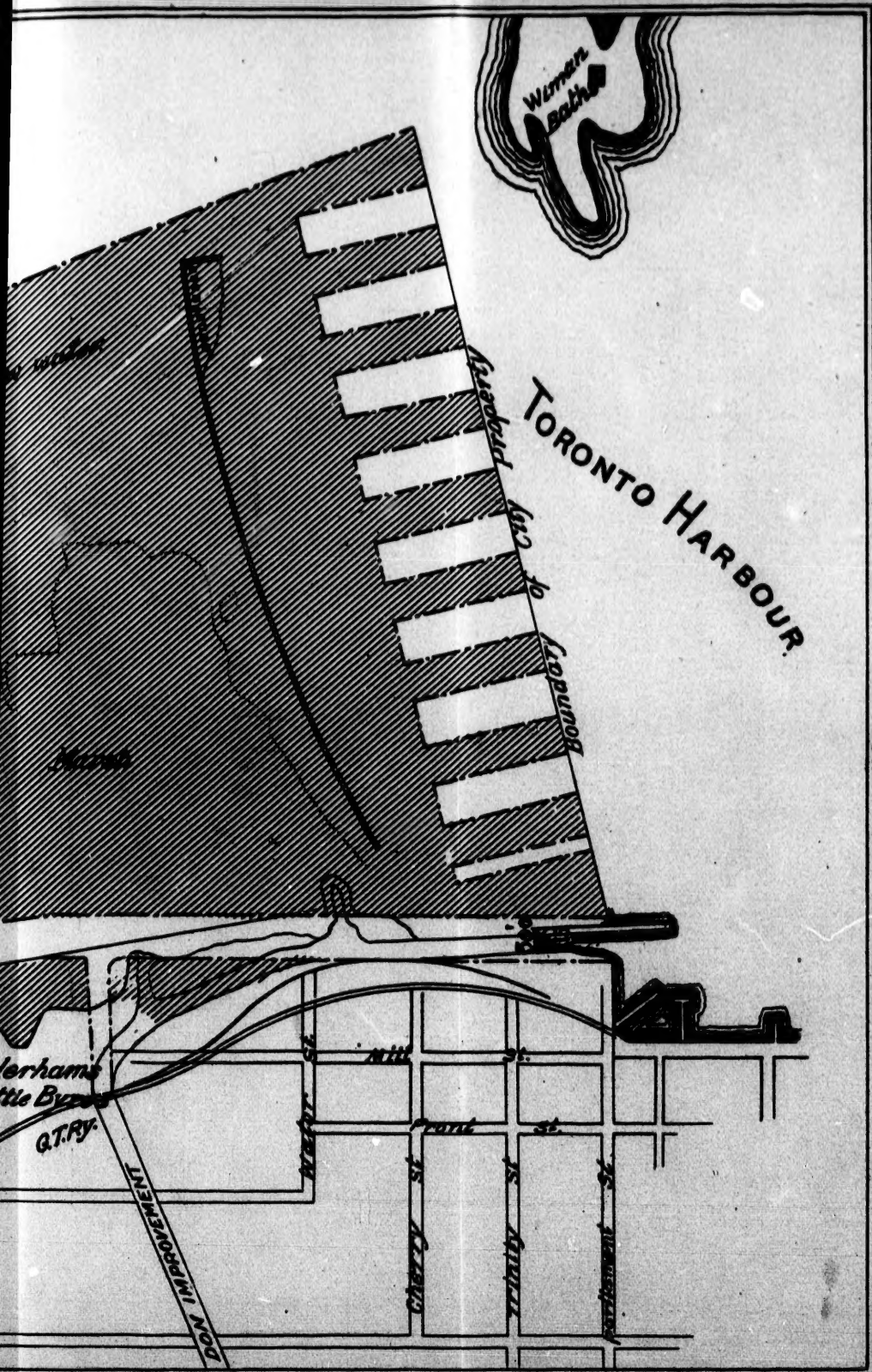
Scale 1000'-1 inch



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ly 1890.



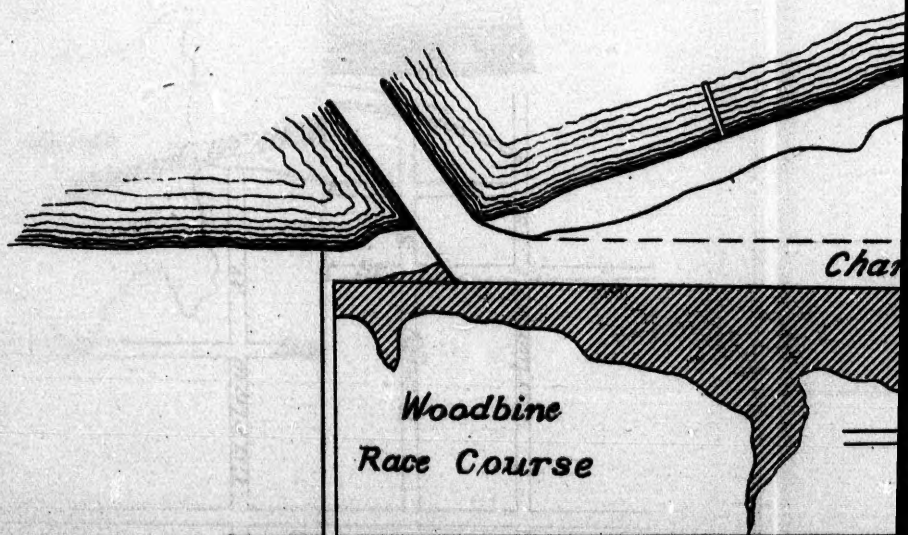


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— ASHBRIDGE

*Shewing proposed
Bay to Eastern End*

*reclaimed as per N^o 1
Accompanying Mr W.T. Jennings*

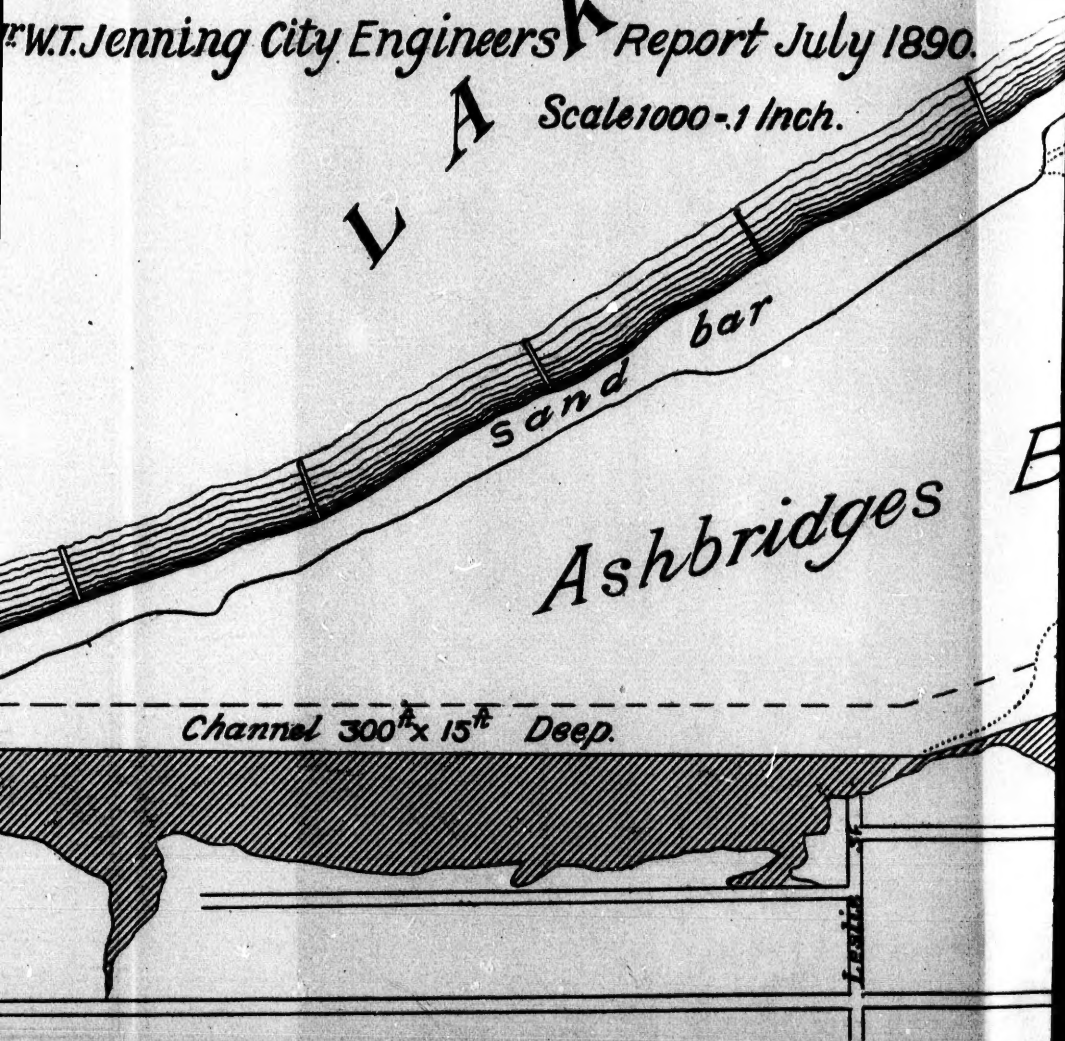


—PLAN OF—
ASHBRIDGES BAY—

*proposed Channel from Toronto
Eastern Entrance and Lands to be
as per N^o 1 Report.*

W.T. Jennings City Engineers Report July 1890.

Scale 1000 = 1 Inch.



O N T A R I O

Bar Uncovered at low Water

Marsh

Bay

Marsh

Marsh

Marsh

New Windsor Line

Gooderham's
Cattle Byres

G.T.R.

Eastern

Ave

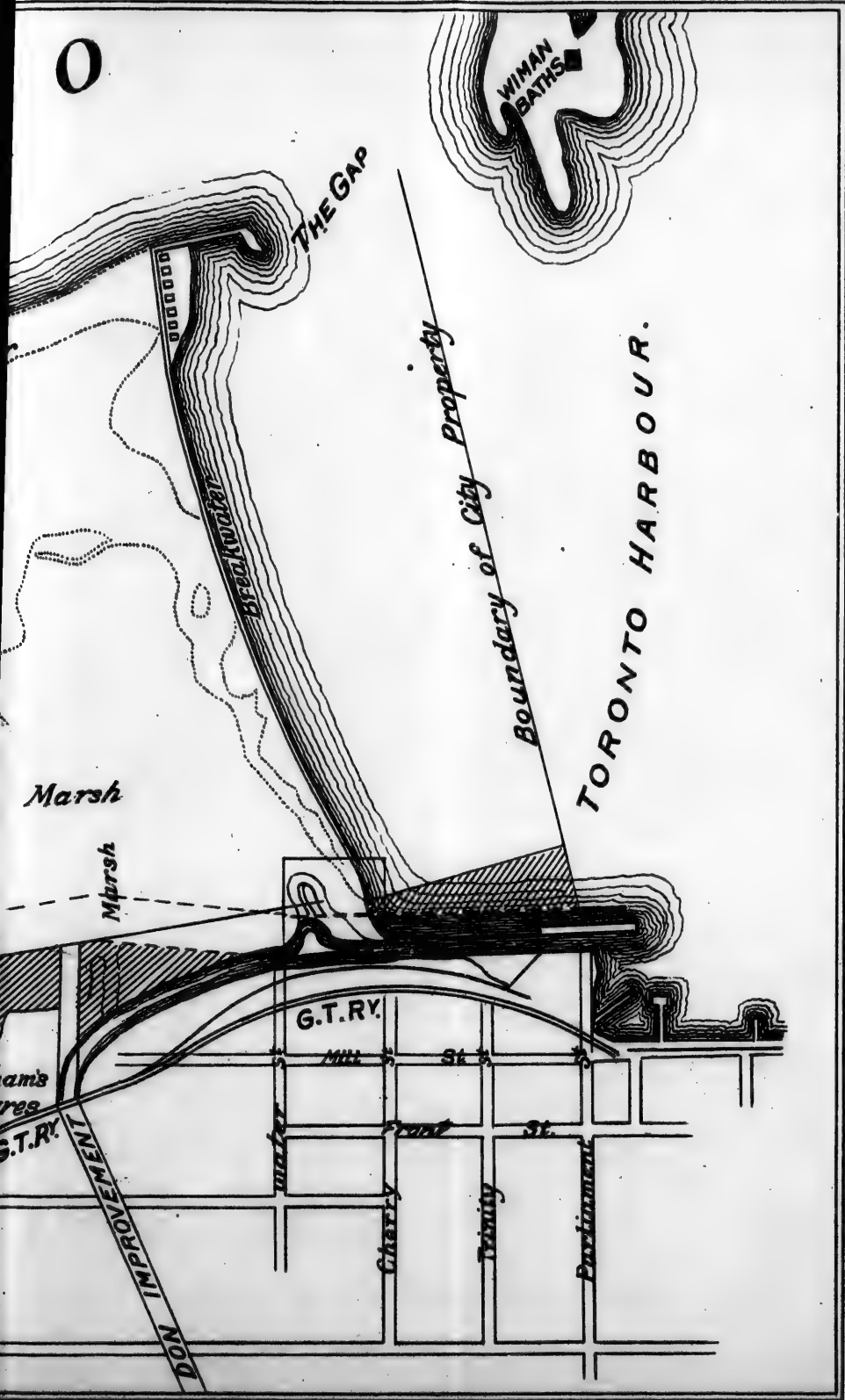
Queen

St

IMPROVEMENT

DON

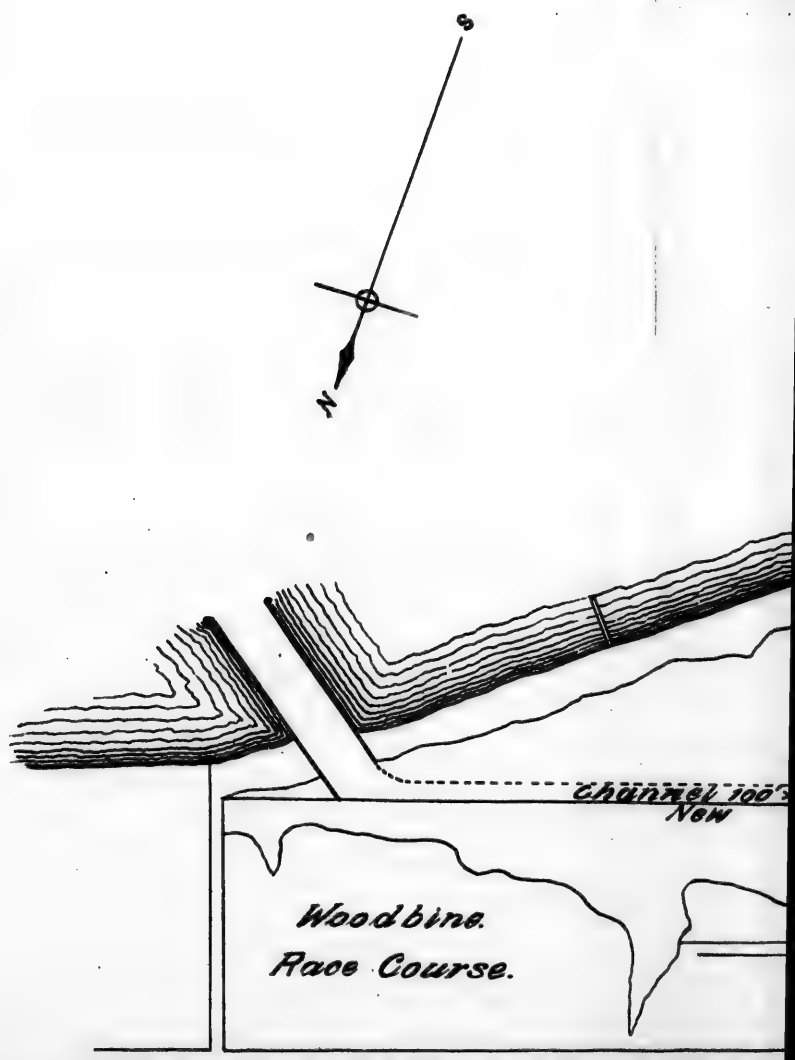
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— *PLAN*
ASHBRIDGE

*Showing proposed
to Eastern Entrance and
Accompanying Mr W. T.*

Scale



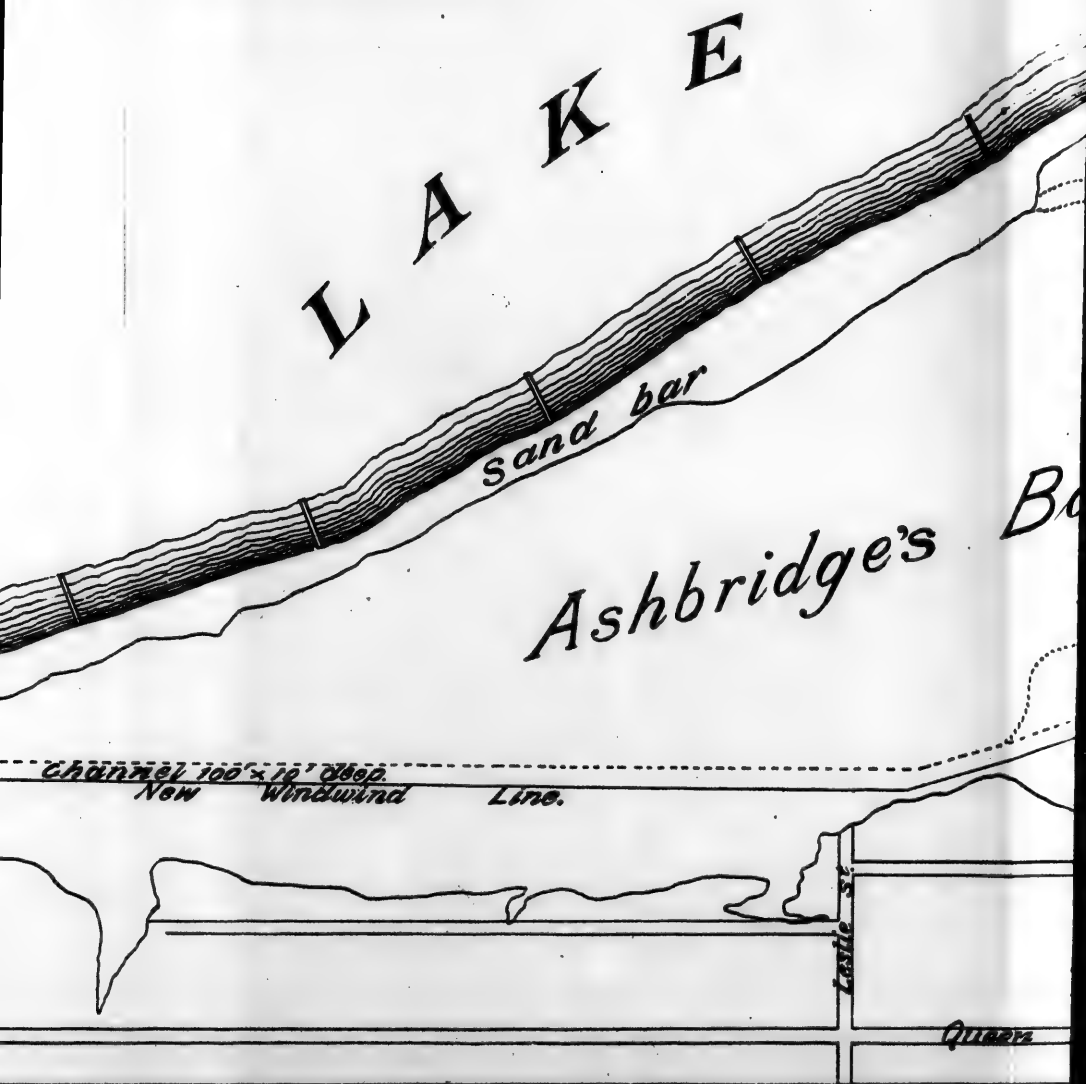
PLAN OF

ASHBRIDGES BAY

Proposed Channel from Toronto Bay
Entrance as per scheme No. II.

By Mr W. T. Jennings City Engineers Report July 1893

Scale 1000 - 1 Inch.



1890. O N T A R I O

Bar uncovered at low water.

Bay.

Marsh

Marsh

Channel 100' x 10' Deep.

New

Windmill Line

Gooderham's Cattle Byre

Eastern Ave.

Carlaw St.

G.T. Ry.

DON IMPROVEMENT

10

THE GAP.

water:

Marsh:

Boundary of City Property.

TORONTO HARBOUR.

Lund.

G. T. RY.

harris Byrne

Winter St.

11/26

Front St.

Cherry

Trinity

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PROGRESSEMENT



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5. A channel 100 feet by 10 feet, commencing nearly opposite the Dry Dock and extending to the eastern entrance, including latter retained at 300 feet by 12 feet, but exclusive of sheet piling, filling, or new channel for River Don, dredging material being simply wasted, would cost, approximately, \$150,000.

6. A channel 100 feet by 10 feet as in No. 5, exclusive of eastern entrance, would cost, approximately, \$66,000.

7. Cost of forming eastern entrance 300 feet by 15 feet, including dredging, cribbing, etc., approximately, \$104,000.

8. Cost of forming eastern entrance for channel, 300 feet by 12 feet, approximately, \$84,000.

The eastern entrance, can, of course, be so modified in design as to cost about one-quarter of the above sum, but it would neither be of a permanent character nor sufficient for shipping purposes. The formation of a channel as above described would, no doubt, have the desired effect of cleansing Ashbridge's Bay, while affording access for vessels to the properties fronting thereon.

Understanding that the essential features now under consideration are the obtaining of a channel extending from the lake on the east, along the City front to Toronto Bay on the west, for the extension of the water frontage for shipping, etc., and for sanitary reasons, I will not therefore, at present, go further into details, as to the reclamation of the area at east end of Toronto Bay or the strip of beach from the "gap" to the proposed eastern entrance herein referred to, than to express the opinion that when circumstances demand, the work can easily be executed in whole or part. I would, however, suggest, that short groynes be placed at intervals of say 1,500 feet along lake side of the sand bar to south of the marsh and Ashbridge's Bay, for the purpose of strengthening and increasing its extent by accretions of sand, which would no doubt result from such treatment.

I attach sheet plans showing the district, with proposed channel marked thereon, as being suitable for all requirements, or modified to the least effective degree.

Respectfully submitted,

W. T. JENNINGS,

City Engineer.

EXTRACT FROM
CITY ENGINEER'S ANNUAL REPORT
FOR 1892.

ASHBRIDGE'S BAY RECLAMATION.

CITY ENGINEER'S OFFICE,
Toronto, November 12th, 1892.

To the Chairman and Members of the Committee on Works:

GENTLEMEN,—In compliance with requests made by the City Council and the Local Board of Health, I beg to submit the following report on this undertaking:

It seems to be generally admitted that some steps should be taken without further delay to cleanse the water of the Bay, and I understand you desire me to formulate some scheme by which this may be accomplished as cheaply as possible, while at the same time any work which may be done will not be thrown away when the larger scheme of reclamation is carried out.

I submit herewith a sketch plan showing the general outline of the scheme I recommend for your consideration, which appears to me preferable to any hitherto suggested.

I propose retaining, and ultimately, when necessity arises, dredging out to a sufficient depth for the accommodation of shipping, the main portion of the Bay which already has the deepest water.

The remainder of the Bay, where the water is shallow and averages only from one to two feet in depth, and nearly all the Marsh, I propose shall be gradually and ultimately filled in, reclaimed and utilized for any purposes that may hereafter be decided upon as most suitable and best.

By reference to the plan it will be seen that I have introduced large and easy curves in preference to straight lines meeting at an angle, where it is necessary for the direction of the shore line to be changed. My object in doing this is to secure the best practicable results from the action of prevailing winds, and to avoid, as far as possible, the liability of rubbish and foreign matter lodging and accumulating at any point or in any large masses, which might otherwise occur.

The partially dredged channel at the eastern end of the Bay, known as Coatsworth's Cut, which is now closed by sand, I propose shall not be again opened, and that a large part of the eastern end of the Bay in that vicinity

shall be finally filled in. If the property owners have riparian rights at that end of the Bay, they will have to be bought out, in order to carry out this arrangement; but I am informed that no such rights exist.

An examination of the plan will show the following principal features:

1. The opening of a wide channel from Toronto Harbour through the Marsh south of the Dry Dock property, into Ashbridge's Bay.
2. The extension of this channel eastwardly through the Bay, along the northern boundary line of the City property and 75 feet therefrom to a point about 2,000 feet east of Lake Street.
3. The further extension of this channel on a curve in a south-easterly direction to a new opening into Lake Ontario, through the sand-bar, at a point about 1,600 feet west of Coatsworth's Cut.
4. The closure of the River Don at the bend near the Grand Trunk Railway bridge, and its diversion southerly in a direct line to the new channel referred to.

The roadways, reservations, dock accommodation and other features shown on the plan are comparatively minor matters, which may be altered or varied, if so desired, to suit public requirements when the further consideration of these questions becomes necessary.

The proposed jetty at the eastern side of the entrance channel into Lake Ontario will of necessity have to be a strong structure. I propose making it either of crib work or of piling filled in between with facine work, large stones, gravel and brush. In order to protect the new jetty and prevent the rapid silting up of the channel with sand—the general movement of which is from the east towards the west—I propose to construct a groyne of facine work and stones, or rough crib work, parallel to and from 600 to 700 feet to the east of the proposed jetty.

Under the proposed scheme it is intended that sheet piling shall ultimately be used for the protection of the sides of the new channel west of the Don, as well as along the greater portion of the newly formed shores of the Bay. Along the southern shore and in places where the dredged material is sufficiently hard and suitable, this piling may be omitted until the necessity for its use arises.

The public are sufficiently informed to render it almost superfluous for me to say that no reclamation scheme can be regarded as perfect which does not either provide for or anticipate the exclusion of faecal matter from the Bay.

With this end in view I am glad to be able to report that the Gooderham & Worts Company are now making provision for the removal of the manure

produced by the enormous number of cattle stabled near the shore at the western end of the Bay, while for the disposal of the liquid refuse they are introducing a system of filtration which I trust may prove efficient.

There can be little doubt that the drainage and waste products from the byres, which have been allowed to run without a stint directly into the Bay for many years, has been one of the chief causes of its rapid pollution lately since the completion of the Government breakwater, which has rendered the Bay almost land-locked. I may here call attention to the fact that the popular impression that the Rosedale sewage and the River Don discharge into Ashbridge's Bay is incorrect. There is no visible connection either of the one or the other with the Bay.

Regarding the sewage discharged into this Bay, I should perhaps mention that the drainage from a population of about 9,500 persons now empties into it through outlets at the foot of Blong, Logan, Morse, Carlaw, Pape, Leslie, and Lake Streets. The dry weather flow or total quantity of this sewage—which, I may remark, is highly diluted before it reaches the Bay—has been ascertained by measurement to be about 710,000 gallons per day, while the water in the Bay, when the surface stands at zero, or at its normal level, amounts to about 700,000,000 gallons.

While Ashbridge's Bay remains in its present neglected and nearly land-locked condition, the comparatively insignificant quantity of sewage now discharged into it may, perhaps, be sufficient—during warm weather, when the water happens to be low—to cause offence and apprehension, especially along the shore in the vicinity of the sewer outlets; yet, with the free admission of Lake water and the partial purification of the shores now contemplated, I do not anticipate any serious nuisance or danger, even though no steps should be taken to divert the sewage to some other outfall for some years to come.

It is unnecessary that I should refer in this report to anything bearing upon the proposed intercepting trunk sewer, further than to say that when it is constructed—as it will be, no doubt, some day—the effect will be to render the water of the Bay as pure as it is possible to maintain any body of water along the margin of a city, provided, of course, that this scheme is carried out, and that other sources of pollution are not tolerated.

While I have thus far outlined the proposed scheme of reclamation, it becomes necessary that I should now point out to what extent it is advisable to carry out the proposed plan, in order to cleanse the Bay sufficiently to meet the present requirements.

I propose and recommend that proceedings be taken as soon as practicable to carry out the following works, viz.:

1. To remove that portion of the Government breakwater which lies in the way of the proposed new channel between Ashbridge's Bay and Toronto Harbor.

2. To dredge a channel for the present about eighty feet in width at the bottom, through the Marsh, from Toronto Harbor to the open water of the Bay, within the lines of the proposed channel referred to, as shown on the plan. This new channel to be made now only to such depth as may be necessary for the dredge to work in conveniently, say about six feet, and to be widened and deepened next summer, if deemed necessary.

3. To continue this channel through the Marsh, between Carlaw and Leslie Streets.

4. To construct sheet-piling protection work along the northern side of the new channel in such places only as the same may be found necessary, which is roughly estimated, for present purposes, at about 3,000 lineal feet.

5. To cover the northern shore of the Bay with clean earth, sand, or dredged material, in the vicinity of the existing sewer outlets, and in such other places as this treatment may appear requisite and advisable.

6. To dredge out, in early spring, the proposed new channel between the Bay and Lake Ontario to a depth of about six feet, and to construct so much of the jetties and groynes as may be found necessary to preserve the channel intact. The channel to be deepened subsequently, as may be deemed necessary.

In order to carry on these works, it is estimated that an appropriation of about \$116,600 will be required.

I have not considered it necessary in this report to touch upon such questions as to how the money should be raised for the proposed works, or what proportion of the cost the property owners directly interested should bear towards the undertaking, as these are matters for adjustment outside of the engineering question.

I should perhaps mention that there is another and entirely different method for the reclamation of the Bay and Marsh, which has been proposed by Mr. Thomas Jackson, C.E., of Hamilton. Mr. Jackson's proposal is to deodorize the sewage flowing into the Bay and to discharge the effluent into the Lake; to erect the necessary protection works and to pump out the water of the Bay entirely, and thus reclaim the whole enclosure for agricultural purposes. The consideration he names is \$31,400, and the lease of the land reclaimed for a term of years.

To carry out such a scheme would, of course, destroy all hopes of utilizing any portion of the Bay for shipping, dockage or commercial purposes, which is one of the objects of the plan I have recommended.

If, however, it should be decided that the present harbor facilities are sufficient for all time to come, and a reliable company can be found who are willing to run all risks and to carry out Mr. Jackson's scheme, without delay, on the terms he mentions, it might be worth further investigation.

Respectfully submitted.

(Sgd.) E. H. KEATING,
City Engineer.